THE VETERINARY RECORD

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EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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Professor Owen Williams.

There is a disadvantage in being the son of a great man, or even in bearing the name of the very eminent. No one of the name of Gladstone can hope to be very prominent after W. E. Gladstone. So with Professor Owen Williams. Until his father's death in 1900 he was comparatively unknown outside of Edinburgh. There were two Professor Williams at the New Veterinary College, but the father's reputation and position overshadowed the son to such an extent that there might have been only one so far as name and fame were concerned. On the death of Principal Williams his son Owen became principal, and much anxiety was felt by his friends as to his ability to successfully conduct the institution, which was not left in a strong financial position. But Owen Williams rose to the occasion and showed himself possessed of business qualities and force of character quite unsuspected. He conducted the New Veterinary College up to the time it was transferred to Liverpool with marked success, and his students continued to exhibit the same proficiency in clinical medicine and surgery that had marked the men under his father's tuition.

Owen Williams had attempted to bring about some connection between veterinary science and the Universities for years before the question was taken up by Professor Rubert Boyce, and it was quite in accordance with the fitness of things that when Liverpool University offered to embrace a veterinary faculty, he should throw in his lot with the adventure. It was pointed out at the time that the public requirement for veterinary surgeons was not increasing, and that the establishment of more veterinary schools was hardly warranted, even if they were under the ægis of a University. However, seven years have passed since then and the Liverpool Veterinary School is still alive and active.

Professor Owen Williams graduated in Edinburgh in 1881, and afterwards continued his studies at the French Veterinary School at Alfort. Returning home he joined the teaching staff of the New Veterinary College. In 1886 he took the Fellowship degree. In 1894 he was elected a Member of Council of the Royal College of Veterinary Surgeons, and became a Vice-president in 1898.

In 1902 he attained the highest position in the veterinary profession—President of the R.C.V.S.—and so well did he fill the office that the Council re-elected him for a second term—an honour seldom offered to anyone. He has played many parts in his professional life, and in all has shown grasp of the situation. When the South African war took place he patriotically offered his services and was sent to the United States to assist in the purchase of transport animals. On this job he had the initial difficulty of organising the work, and had only succeeded in overcoming it when he nearly lost his life from an attack of typhoid fever.

For some years he edited *The Veterinary Journal* with conspicuous ability. He also edited more than one edition of his father's well known works on Medicine and Surgery. Fleming's "Operative Surgery," Vol. II., was a work he saw through the press, and made complete by writing the last few pages which the author was prevented by death from finishing. He contributed a number of papers to local veterinary societies, and was President of the National Veterinary Association.

Prof. Owen Williams' untimely death at the early age of 51 leaves the veterinary profession poorer, and although it is not probable that he would have added much to original research had he lived, he would certainly have done good work in his professional position in instilling into future graduates sound practical knowledge of medicine and surgery.

In private life Owen Williams was a good friend and pleasant companion. He had been given a liberal education, including terms at the University of Edinburgh; he possessed far above the average intellect, was well read, and had a sense of humour, which is a saving grace in all men. He leaves a widow, two sons and a daughter, with whom the most sincere sympathy for their irreparable loss will be felt by a very wide circle of friends.

At the funeral, which took place last Saturday, there was a large attendance of friends and colleagues from the University and the veterinary profession.

Our portrait presents the Professor in his official state as President of the Royal College of Veterinary Surgeons.

Civil Veterinary Work in Bengal.

This week we publish a Government resolution on the annual report of the Veterinary College and Civil Veterinary Department of Bengal for the year 1910-11. The resolution is itself a condensed report of the various activities of the Bengal Civil Veterinary Department, among which is the Bengal Veterinary College, directed by Colonel Raymond, I.C.V.D. Its concluding clause is an emphatic official commendation. "The Lieutenant-Governor in Council congratulates Col. Raymond on another year's efficient administration, and thanks him for the care and tact which he has displayed in the conduct of his duties." This is not the first official recognition of the merit of the civil veterinary work of India that we have heard of late, and, like the others, it shows that the C.V.D., is gradually becoming more patently valuable to the country.

The document enters in some detail into the year's work in Bengal, which may be pronounced highly satisfactory. Even in the one direction in which the need for further improvement is most emphasised, the conditions show an advance upon those of former years. Slackness in reporting outbreaks of disease, and hostility to inoculation methods still remain in some districts, but the mere fact that the inoculations performed during the year under report have about doubled the total of the preceding one shows that the population is becoming less prejudiced.

No native opposition seems to have been encountered in Calcutta and its neighbourhood, where the control of epizootic diseases is conducted by Col. Raymond hlmself. Rinderpest, foot-and-mouth disease, and glanders, while not very prevalent, are nevertheless in evidence in and around Calcutta, and cast a heavy additional responsibility upon the Principal of the Bengal Veterinary College. Glanders, we notice—so far as the number of infected stables is concerned—declined more than 33 per cent. during the year under report, thus diminishing to much the same extent as it did here during the same period.

The progress of the Veterinary College and its hospital, and also that of the Raymond Research Laboratories, seems altogether good. So far, unfortunately, the various outlying veterinary dispensaries scattered throughout Bengal, have made no great headway in gaining the confidence of the natives; but they are certain to do so in time. The C.V.D. in Bengal increased its staff numerically during the year; and every additional inspector or assistant means one more factor in overcoming popular prejudice.

In the meantime, Col. Raymond and Mr. Quinlan may be congratulated upon their twelve months' work. "Another year's efficient administration," such as this is admitted to be, marks a further stage in the development of a Department which, though still young, is already becoming invaluable.

ACTINOMYCOSIS.

The accompanying photographs illustrate the appearance presented by a typical case of actinomycosis which recently came to the notice of the writer when in the vicinity of Cape Town, South Africa.

Figure 1 shows the cow's head—the subject of this short note—prior to slaughter. As will be seen the case was a very well marked one, both rami of the lower jaw being extensively involved in the diseased process. In figures 2 and 3—microphotographs from a section of the diseased tissue shown in figure 1—are depicted three colonies of the streptothrix actinomyces, each surrounded by round cells and leucocytes, and externally by fibrous tissue; whilst figure 4, likewise a microphotograph from the same section, shows the edge of one of the colonies—the radiating club-like elements are here well in evidence.

One does not for one moment claim that this particular case differed in any respect from the textbook description of the malady. The photographs are here reproduced merely in the hope that they may be of some slight interest to readers (more especially to the younger ones) of *The Record*, illustrating, as they do, a well marked and typical example of infection with the streptothrix actinomyces.

WALTER JOWETT, F.R.C.V.S., D.V.H.

TOXIC DOSE OF SULPHUR.

On Monday last I was called in to a 14 hands cob with the history that the owner had given him ½lb of sulphur (after having weighed it) in his food, on the previous day at 12 o'clock, "to cure proof worms."

I saw the cob at 8 p.m., 20 hours after having eaten the sulphur, he was then showing colicky pains, very offensive diarrhœa, extremities cold, pulse quick, almost imperceptible, and died at 12 o'clock, just 18 hours after having taken the sulphur.

I have had several deaths from sulphur poisoning, but have never before known the exact amount given, and I thought this case worth recording on that account.

CHARLES E. PERRY, F.R.C.V.S.

Bristol.

ABSTRACTS FROM FOREIGN JOURNALS.

UMBILICAL TUMOURS AND UMBILICAL INFLAMMATION IN THE CALF.

Gmelin has stated that neoplasms at the navel are very rare in the domestic animals, and do not occur in ruminants to his knowledge. Gustav Rozsa, however, now describes (*Allatorvosi Lapok*) two such cases which he has recently observed, both in bull calves of three weeks old. In one case the tumour was two inches long, 4-10th inch thick, bright red in colour, and situated hat-like upon the stump of the umbilical cord. In the other case the tumour showed no rim-like edge, but its colour was similar to that of the first one. The tumour divided like the fingers over the abdomen; and, upon section, it seemed to be composed of firm connective issue. In both cases excision with the knife was practised with success. The tumours, in common with the stump of the umbilical cord, were removed; the wounds were sutured; the sutures were removed on the third day; and healing was complete in two weeks. The author adopted the plan of protecting the wound with an antiseptic bandage, in order to avoid contamination by urine and straw.

The purulent inflammation of the navel in calves, according to Rozsa's experience, is not so serious a disease as many suppose, if it is subjected to timely and adequate radical treatment. The symptoms are

dulness and loss of appetite; the navel string is uniformly swollen, warm, and painful; grey-brown greasy crusts are found upon the stump of the navel string; and the neighbouring tissue is similarly infiltrated, and is malodorous. The treatment should be operative in every case. The animal should be placed in the dorsal position, and the field of operation adequately prepared. The stump of the navel string, with the skin attached to it, is then removed; and the whole cavity is thoroughly scraped out with a curette, in which process a considerable quantity of malodorous, greasy, grey-brown, necrotic tissue is always removed. A tampon of wadding of a suitable size is then placed in the cavity, and an antiseptic bandage applied over the whole. Recovery takes place without any further treatment, and is so rapid that the calves begin to suck soon after the operation. The cause of this disease is uncleanliness; and Rozsa mentions that in his district it is customary to pay no attention to the navel string, and to allow the cow to lick it off. In the case of bull calves, the urine reaches the navel during urination; and on that account diseases of the navel are more common in bull calves than in heifers.—(*Berliner Tier. Woch.*)

Papillomatous Dermoid Cyst in a Dog.

Roquet records (*Journal de Méd. Vét. de Lyon*) the following case in a two-year-old dog. The animal showed a circumscribed swelling, of the size of a pigeon's egg, upon the left side of the root of the penis. The skin in this region was extensively ulcerated, and a fistula existed—the latter being very short in its course, indurated at its edges and surrounded by a zone of slight inflammation, and giving exit to a not very abundant purulent exudate.

The dimensions of the exterior orifice of the fistula rendered the extirpation of the cyst very easy. It was enucleated without difficulty by the aid of digital pressure.

The neoplasm was found to be oval in shape and surrounded by a membrane of connective tissue, which was greyish white, not very thick, and elastic in consistence. When incised, it was found to be filled with a creamy, spangled, somewhat nacreous substance, which the author compares to boric acid in its aspect. The internal face of the cyst-wall was also spangled and nacreous; but, when all material of this nature had been removed from it by means of a jet of water, it showed filiform projecting papillæ of from ½ inch to 2-5th inch long.

The cyst-contents, when microscopically examined in a drop of glycerine without staining, were found to consist of small epidermical scales, free or joined together, colourless and brilliant, detached from the internal face of the cyst-wall.

The cyst-wall, throughout its extent, possessed the simple structure of the skin without pilo-sebaceous follicles, but with very long filiform dermal papillæ covered with very well developed stratified horny epithelium. The great number of these papillary projections had given the internal face of the cyst-wall its foliated papillary aspect to the naked eye. Histological sections of a fragment of the cyst-wall showed the characters of a horny papilloma.—(*Annales de Méd. Vét.*)

Phlebotomy in Azoturia.

Wyssmann (*Schweizer Archiv*) after summarising the views of different authors upon the effects of phlebotomy, declares that it is of the greatest utility in azoturia. In serious cases of this affection, the practitioner always finds dyspnea, with a profound alteration of the pulse; the respiration is always accelerated and often difficult. It is therefore comprehensible that phlebotomy should be useful in facilitating the cardiac and pulmonary functions.

After practising phlebotomy in cases of azoturia, the patients almost always become much calmer. In every case, the bleeding not only produces a mechanical effect, but also has an action in eliminating a certain quantity of toxic products from the organism. It is known that bleeding stimulates the urinary secretion and thus indirectly favours the elimination of products of denutrition; and this effect is obtained much more rapidly and completely by phlebotomy than by the administration of medicines.

Moreover, von Hoesslin has demonstrated experimentally that each bleeding is followed by the passage of a certain amount of sodium chloride from the lymphatic system into the blood, and that this is quickly followed in its turn by the elimination of a portion of the products of denutrition which act toxically, and which can only leave the organism by the urinary passages. It is probable, also, that the effects of bleeding in azoturia should be partially attributed to the specific action of hæmorrhage upon the blood-forming organs, such as the bone narrow and the spleen.

Wyssmann also relates his own personal observations of azoturia, which are based upon 43 cases. Of these 37 occurred during the winter months, and six only during the summer ones. The author deducés from this that chill, if it is not a direct cause of azoturia, at least acts as a predisposing condition.

All these 43 cases were bled at the jugular, and the amount of blood taken varied from 4 to 8 litres (approximately from 7 to 14 pints). In 10 horses, bleeding was practised when the animal was already recumbent; and 7 of these cases succumbed to the disease. The other 33 horses were bled while they were still standing, and only one died from azoturia. The percentage of mortality for the whole 43 cases is therefore 16·4%, and it is notable that, in animals bled when recumbent the mortality reached 70%, while it was only 3% in the case of those bled while still standing.

It is important, of course, to stop all work as soon as the first symptoms of azoturia appear. The author, however, has met with serious cases in which, though the horse was still standing, dyspnœa was violent and transpiration abundant, and in which, by immediately having recourse to copious bleeding, he has enabled the patient to travel for

another half-hour. He remarks that this would have been impossible without bleeding.—*Annales de Méd. Vét.*

(Wyssman's belief that "chill" is a very important, if not the main factor, in the causation of azoturia, is one which is very largely held among Continental veterinary surgeons.—TRANS.)

BRONCHIAL LITHIASIS.

V. Ball (*Journal de Méd. Vét.*) has observed this affection in a thirteen-year-old cat The animal had shown fits of coughing corresponding to veritable calculous crisis, and had finally developed dyspnœa, loss of appetite, and emaciation. The author remarks that the expectoration of a broncholith by the cat, if it had occurred and had been observed, would have established the diagnosis as it does in the case of the human patient. This cat finally succumbed to a crisis of asystolism with pulmonary œdema.

Post-mortem, partial atelectasis of the middle and anterior lobes of the lung was found. The lungs showed slight passive congestion, with œdema; and some centres of active congestion were also found. The right anterior lobe showed a small hæmorrhage, which was adjacent to a centre of chronic broncho-pneumonia, the latter being yellowish-grey in colour, mamillated upon its surface, and measuring 1 1-5th inch long by 4-5th inch broad.

This broncho-pneumonic centre was situated in the region adjoining the pedicle of the pulmonary lobe in question. When it was sectioned transversely, the pulmonary tissue showed dilated bronchi (bronchiectasis) from which a yellowish, thick, turbid, and glairy muco-purulent fluid was escaping. The knife, when cutting, was arrested by stony concretions which were lodged in the bronchi, and especially in one particularly dilated bronchus. This last-named bronchus contained a stone, of cylindrical shape and an irregular granular surface, surrounded by muco-pus. This stone, when washed with water, was found to be of a greenish-white colour, opaque, and measuring 4-10th inch long by 1-6th inch thick.

Five other stones were found, either more remotely situated in the same bronchus or in other neighbouring dilated bronchi. Some were small, muriform, pale green or greenish-white, and opaque; others were larger, and were elongated and irregular in shape,

Chemical analysis showed the stones to be formed of phosphate and carbonate of calcium.

The heart was voluminous, but affected with general dilatation. Another lesion was found which is exceptional in the cat, viz., the mitral valve showed lesions of chronic vegetating endocarditis, which had entailed insufficiency of the orifice. This was the cause of the hypertrophy and dilatation of the heart, which had manifested itself in the lung by the passive congestion and œdema.

The autopsy also revealed the existence of a slight ordinary ascites, the exudate of which was citrine, clear, and very fluid. The lesion was of cardio-hepatic origin. The liver was slightly atrophied, red-brown in colour, and firm in consistence (cirrhosis). The hepatic veins were very apparent, showing passive congestion of cardiac origin.

The author concludes by mentioning an observation he made in the section of an aged horse. In a posterior lobe of this animal's lung, and near to the surface, he found a small smooth-walled cavity in which a calculus was lying free. This pneumolith was cylindrical in form, with short branches, was a little irregular upon its surfaces, and measured 4-5th of an inch long by ¼ inch thick.—(*Annales de Méd. Vét.*) W. R. C.

THE BENGAL VETERINARY COLLEGE.

The following is a Government resolution (No. 2,501 Agri.,) dated the 12th August, 1911, on the annual report of the Bengal Veterinary College and the Civil Veterinary Department, Bengal, for the year 1910-11.

"Colonel Raymond was Principal of the Bengal Veterinary College and Mr. Quinlan was Superintendent of the Civil Veterinary Department throughout the year. Mr. P. J. Kerr, I.C.V.D., joined for training on the 22nd January, 1911.

2. *Bengal Veterinary College.*—The number of students on the College roll at the beginning of the session was 176, but the actual number in the classes at the end of the session was 138. Of these, 38 came from Bengal, 15 from Bihir, 5 from Orissa, 67 from Eastern Bengal and Assam, and 13 from other provinces. The results of the final examination were satisfactory, the percentage of passes being 76. The conduct and general health of the students were good. The Principal reports that the students' private sick bay which was opened last year has been useful and is appreciated. A curator and librarian has been appointed for the museum attached to the college. The usual nursing class for Army Transport drivers was held during the vacation and was attended by eight men who were found competent at the end of their course.

3. *College Hospital.* During the year under report 5,869 cases were treated as compared with 5,680 during the previous year, showing an increase of 189. These figures do not include 4,000 hackney-carriage horses which were examined for the Calcutta Corporation. The number of animals sent for treatment to the college hospital in connection with cruelty cases was very small.

4. The administration of the Glanders and Farcy Act in Calcutta and its neighbourhood was conducted smoothly and efficiently under the supervision of Col. Raymond. During the year 4,025 stables containing about 16,000 horses were inspected and glanders was detected in 34 stables as against 54 in the preceding year. The total number of horses admitted into the contagious diseases hospital was 303, including 7 horses which were under observation at the close of the preceding year. Of these, 57 were destroyed, 10 died in hospital, and 230 were discharged as free from glanders, and 6 remained under observation at the close of the year. A sum of Rs. 245-5-4 was paid as compensation for the destruction of animals under the Glanders and Farcy Act in the area under the supervision of Colonel Raymond. There was no friction with the people. The management of outbreaks of all epizootic diseases, undertaken by Colonel Raymond with the sanction of the Calcutta Corporation, has borne excellent results. Special provision was made for the inspection of cattle belonging to private milk-vendors. Rinderpest was prevalent in Calcutta and the suburbs during the year; and foot-and-mouth disease appeared in several parts of Calcutta and in the Howrah and Garden Reach muni-

cipal areas. Prompt assistance was rendered in all these outbreaks. In Calcutta and the suburbs 2,276 cattle were inoculated against rinderpest.

5. *Raymond Research Laboratory.*—This institution continued to do excellent work in the diagnosis of contagious and obscure diseases in cases admitted into the hospital, and from materials sent by veterinary officers from the mufassal. The laboratory has now been fitted with an electric installation and with up-to-date instruments. Two veterinary graduates from the Civil Veterinary Department, Bengal, passed the post-graduate course of training for promotion to Inspectorships during the year.

6. *Civil Veterinary Department — Treatment of Diseases.*—Though an improvement has been noticed in some districts with regard to the promptitude with which outbreaks of disease are reported, much still remains to be done in this respect. The Lieutenant-Governor in Council notes with regret that there are complaints against the Agricultural Associations of supineness in reporting cases of outbreaks. The Inspector-General of Police has issued orders that a register of diseases is to be kept in each thana. The staff of the Veterinary Department attended 282 outbreaks in the mufassal, and performed 25,782 inoculations as compared with 12,746 during the previous year. This is satisfactory, but more can be done if the co-operation of the more enlightened members of the public is secured and the raiyats become more willing to accept this method of prevention. In North Bhagalpur, Gaya, Hooghly, Burdwan, Sonthal Parganas, Muzaffarpur and Champaran the Veterinary Assistants met with great opposition, and the fact was brought to the notice of the District Magistrate on each occasion. The efficacy, however, of preventive inoculation is beginning to be recognised.

7. *Veterinary Dispensaries.*—No new dispensary was opened during the year. One is under construction at Bettiah, and one at Beguserai has not yet been equipped. Excluding the dispensaries at Howrah and Cooch Behar and the Pinjrapoles at Hazaribagh and Sodepur, there were 22 dispensaries under the direct supervision of the Superintendent during the year. It is proposed to close the dispensaries at Balasore, Palamau and Suri, in which very few cases are being treated. There was a slight falling-off in the total number of out-patients treated, and it is to be regretted that the raiyats have not yet learnt to appreciate the usefulness of these dispensaries.

8. *Breeding operations.*—Government does not at present possess any farms for the breeding and rearing of bulls. Two such farms are, however, maintained by the Hathwa and Bettiah Wards' Estates, which supply bulls for use in their respective areas. A herd of Siri cattle is being reared at Kalimpong by the St. Andrew's Colonial Homes with a view to improve the breed of cattle in Darjeeling. The demand for bulls for breeding purposes is on the increase, and the question has been engaging the attention of the Director of Agriculture for some time.

9. *General.*—There were 8 Inspectors and 71 Veterinary Assistants under the control of the Superintendent of the Civil Veterinary Department at the close of the year against 6 and 62 during the previous year. The scheme for the formation of a Provincial Veterinary Service was sanctioned during the year, but was not brought into operation. The local bodies concerned have been consulted by the Director of Agriculture, Bengal, and his recommendation to give effect to the scheme from the 1st April, 1911, has been accepted by Government.

10. The Lieutenant-Governor in Council congratulates Col. Raymond on another year's efficient administration and thanks him for the care and tact which he has displayed in the conduct of his duties.

DISEASES OF ANIMALS ACTS 1894 TO 1910, SUMMARY OF RETURNS.

Period.	Anthrax.				Foot-and-Mouth Disease.		Glanders (including Farcy)		Counties Affected	Sheep Scab.	Swine Fever.	
	Outbreaks		Animals									
	Confirm'd	Reported	Confirm'd	Reported	Outbreaks	Animals.	Outbreaks	Animals.	Animals Attacked	Outbreaks	Outbreaks.	Slaughtered. *
GT. BRITAIN. Week ended Sept. 9	15		18				6	13			35	325
Corresponding week in 1910		27		28			6	6	Hants 4	4	19	309
Corresponding week in 1909		16		21			7	16			24	579
Corresponding week in 1908		17		25			17	25	London 7	2	21	200
Total for 36 weeks, 1911	598		746		8	425	138	325	Middlesex 2	307	1803	21123
Corresponding period in 1910		1027		1235	2	15	257	781		343	1019	9167
Corresponding period in 1909		921		1232			382	1376		471	1273	11571
Corresponding period in 1908		775		1038	3	112	583	1808		639	1492	8700

Board of Agriculture and Fisheries, Sept. 12, 1911.

	Parasitic Mange (outbreaks)									
IRELAND. Week ended Sept. 9	...	...	...	...	...	...	...	1	...	8
Corresponding Week in 1910 ...	...	...	...	...	...	...	2	...	2	14
Corresponding Week in 1909 ...	...	...	...	...	...	...	3	1	1	...
Corresponding Week in 1908 ...	...	...	...	...	...	...	...	2	3	108
Total for 36 weeks, 1911 ...	7	14	...	...	2	3	52	254	92	1587
Corresponding period in 1910 ...	5	8	...	...	1	2	56	349	73	1707
Corresponding period in 1909 ...	5	5	...	...	...	...	67	306	83	1505
Corresponding period in 1908 ...	6	9	...	...	...	...	31	276	135	2971

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Sept. 11, 1911

NOTE.—The figures for the Current Year are approximate only.

* As Diseased or Exposed to Infection

Horse Breeding and Genetics.

In the Section, Agriculture, at the recent meeting of the British Association:

Mr. C. C. HURST submitted a paper on "The Application of Genetics to Horse-breeding." Soon after the discovery of Mendel's work in 1900 his attention was directed to the thoroughbred horse as a promising subject for investigation. The question of coat-colour provided a useful beginning. A few years' investigation of Wetherby's "General Stud Book" brought to light the fact that chestnut coat-colour was recessive to bay and brown. Consequently chestnut horses always bred true when mated together, notwithstanding their possible bay and brown parents and ancestors. On the other hand, bay and brown horses were of two kinds—either they threw chestnuts or they did not. Further investigation showed that grey coat-colour was dominant to bay, brown, and chestnut. Consequently every grey horse must have a grey parent and a grey ancestor in every generation in the direct line. In England grey thoroughbreds were few, and grey × grey matings were rare; consequently English grey thoroughbreds were nearly all heterozygous, throwing bays, browns, or chestnuts. The genetic relationships between bay and brown, and between grey and roan, were not yet known. With regard to black, Prof. James Wilson had pointed out that in thoroughbreds all the so-called "blacks" were really dark browns with tan muzzles.

In the Shire and the Clydesdale, however, Professor Wilson found true blacks, which apparently behaved as dominants to chestnuts, and probably as recessives to bays, browns, and greys. With regard to chestnuts, it seemed likely that several genetic types might exist. Mr. J. B. Robertson had pointed out that the dark or liver chestnut behaved as a dominant to the light or yellow chestnut.

COAT-COLOUR AND RACING POWER.

To the practical breeder the question of coat-colour was a minor consideration, except, perhaps, in a few fancy breeds where certain colours were more popular than others. In the thoroughbred, at all events, a good horse was of any colour. A much more important question was—Can we win the Derby?

Generally speaking, coat-colour and racing power did not seem to bear any sort of relationship to one another, being apparently inherited quite independently. On the other hand, evidence was gradually accumulating which suggested that in certain strains there was a partial coupling of coat-colour and racing power. For instance, the famous St. Simon was a homozygous bay that never threw a chestnut. On the other hand, five of his most distinguished sons—Persimmon, Diamond Jubilee, Florizel II., St. Frusquin, and William III.—were all heterozygous bays and browns that threw chestnuts. These chestnut grandchildren of St. Simon had so far proved themselves to be much inferior in racing power to their bay and brown brothers and sisters. Thus, while these chestnuts had between them only won two classic races, their bay and brown brothers and sisters had between them won fifteen classic races, and were only about twice as numerous. Another interesting point under investigation was the apparent partial tripling of brown coat-colour, high racing power, and female sex in St. Simon's own offspring. St. Simon's brown fillies proved themselves to be strikingly superior in racing power to to the bay fillies, the brown colts, and even to the bay colts, a few individuals of which were extraordinarily good. This was the more remarkable when we considered that in racing, colts had many advantages over fillies. It seemed possible that the elucidation of such an apparently trivial thing as coat-colour might help to throw light on the more complicated question of the breeding of a classic winner.

HOMOZYGOUS HUNTERS.

It was generally admitted that the most useful type of light horse was the hunter. Recently Professor Cossar Ewart and he had drawn up a scheme of experiments in horse-breeding for the use of the Board of Agriculture, the object being to make a line of homozygous hunters. At present there was no such thing as a pure-breeding hunter; their studies had been mainly based on the thoroughbred 'chaser as probably the most suitable material upon which to work. Their investigation of the Stud Book and Racing Calendar to find suitable animals with which to experiment had led them to the discovery of the existence of homozygous 'chasers, though in very few numbers. After eliminating many hundreds of heterozygous and doubtful animals they had found five mares and three stallions, which, when bred together had given nothing but horses of the 'chaser type, as tested on the racecourse and at the stud. In view of this fortunate find of what might perhaps be called a 'chaser "pure line," they had recommended the Board of Agriculture to purchase some of the offspring of these animals, in order to increase the "pure line," and they hoped that this experiment would help them to solve the problem of the making of a homozygous hunter.—*The Times.*

Tuberculous Cattle and Compensation.

Dr. Collingridge, Medical Officer of Health, has presented to the Corporation of the City of London a report in which he analyses the final report of the Royal Commission on Tuberculosis, and points out that its findings fully justify the action taken by the Corporation from time to time on the advice of its officers. In discussing some of the administrative questions which arise, Dr. Collingridge expresses the opinion that a measure regulating the milk supply and applicable to the country as a whole is urgently required. He considers that every farmer who sells milk should be registered, that registration should only be allowed in the case of premises in good sanitary condition, and that every cow whose milk is sold should be tested by tuberculin by a veterinary surgeon. All cows found to react should be marked and registered, so that they can be followed up to the time of slaughter, and specially examined after. All cows found to be healthy should be kept absolutely apart from those reacting. No milk from any tuberculous cow (whether or no the udder be affected) should be allowed to be sold for human consumption, and if given to animals should be boiled or pasteurized before use. The machinery should be in the hands of the local authority, but ample power should be vested in the central authority to take action in case of default. All milk should be conveyed in dust-proof churns, locked or sealed and carried in properly constructed vans, and special precautions to ensure purity during distribution enforced. With regard to compensation in the case of animals apparently healthy, but found on slaughter to be diseased, Dr. Collingridge observes:

"So long as the present practice of selling to foreign countries the best of our strain which has proved to be free from tuberculosis (and foreign countries will accept no other), and retaining for the raising of our own herds at home those that react or are doubtful—so long will it be unwise to compensate. . . . . Compensation should be at a fixed amount, applicable only to those animals which are clinically healthy, and no compensation should be given if it can be shown that the owner has been responsible for the disease by neglect with regard

Fig. 1.

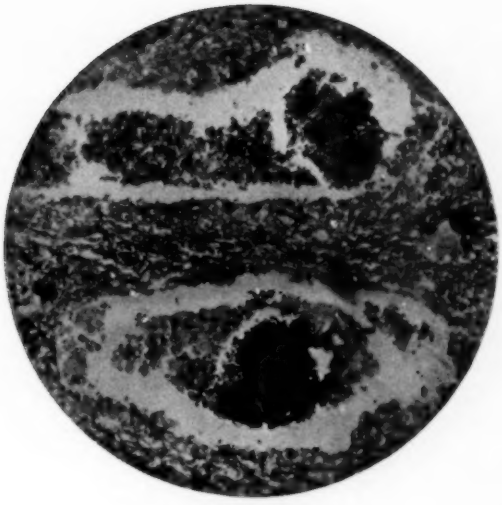

Fig. 2.

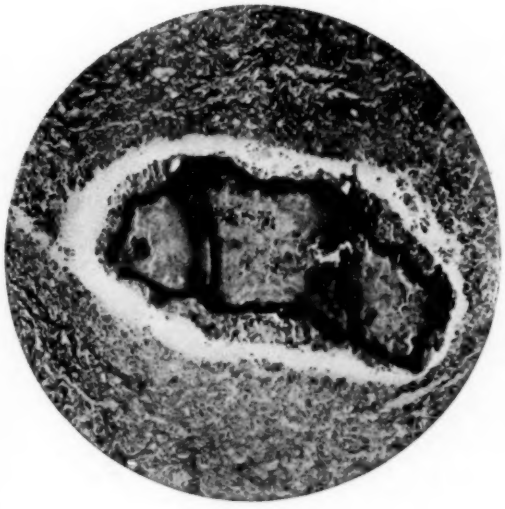

Fig. 3.

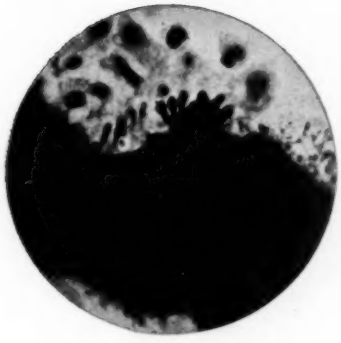

Fig. 4.

Cow's Head: 2, 3, Sections of the diseased tissue:
4, Portion of same section, showing "clubs."

ACTINOMYCOSIS.

Note by Walter Jowett, F.R.C.V.S.

to the breeding, feeding, or housing of the animals in question. Compensation should be given for a limited time only, say three years. During that period the farmer will be able to take reasonable steps to eradicate the disease from his herd. At the expiration of the term, the possession of a cow in a milking herd in an advanced stage of consumption should be a statutory offence."

Compensation, he thinks, if agreed to, should be paid out of national and not local funds. As regards meat, he considers that there is urgent need for a uniform standard throughout the country, binding upon all authorities, so as to abolish the absurd anomaly of meat being condemned in one locality part which is allowed to be sold in another.

VETERINARY WORK IN RUSSIA.*

By S. A. GRUENER, M.V.S., Veterinary Inspector, Kamtchatka, Russia.

We have only four Veterinary Colleges in Russia, while you have nineteen such colleges in the United States. These four colleges in Russia are located at Charkov, in South Russia; Kasan, in East Russia; Jariev (formerly Dorpot), in Liveland, and Vasovie in Polen Russia.

All of these colleges were established fifty years ago, and the number of students was at that time small. For example, Dorpat, now Jariev, graduated only three students in 1880. But the growth of the number of students has been so great that now each college graduates more than one hundred each year. I have not the exact statistics of these colleges, called in Russia "Veterinary Institutes," but I can remember the data in round numbers.

College.	Number of students.	Number of graduates.
Dorpat (Jariev)	400	100
Charkov	500	120
Kasan	700	150
Varsovia	200	50
	1800	420

Statistics show that the United States has many colleges in which veterinary science is taught, but that there are comparatively few veterinary students in each college. In Russia, however, we have few colleges teaching veterinary science and a large number of veterinary students in each college. Which system, you ask, gives the better results? I answer, that I believe the system in the United States is the better, because a great many students in one college cannot get enough practical work as well as receive the proper instruction in crowded laboratories, and therefore gain only the theoretical knowledge.

The general average of students and graduates of veterinary science is greater in the United States than in Russia, and there are probably more veterinarians here than in Russia.

In comparing the course of study in Russian and American veterinary colleges we find that in Russia the course of study is longer. In the United States the students learn veterinary science in three years in the majority of colleges, and graduate as Doctor of Veterinary Science. In Russian veterinary institutes the course of study requires four and one-half years to complete, and after passing the final examinations the students graduate only as "Veterinary Surgeons." If the students want to receive a higher degree they must take an examination again not earlier than one year after graduation and write on some topic and complete a thesis. They must defend their topic in the presence of the people, the laymen, the students and professors, "public defence." If their defence is accepted they will then receive the degree of "Magister (master) of Veterinary Sciences." The degree "Doctor" is not given to veterinarians in Russia. In other departmenss of the University (mathematics, language, history, zoology, botany, chemistry, etc.), the same order is maintained to receive the scientific degree. After finishing their course in the University some students take advance work, pass an examination, write on some topic and defend their work before the public. They then receive the degree of "Magister" (master) of Zoology, Chemistry, etc. To obtain the degree of Doctor, the Magister (master) must write on some chosen topic and defend it. The graduates in the medical department and medical colleges receive the degree of "Physician." If they desire a scientific degree they must take an examination again, write on some topic and defend their work. The "Physician" then receives the degree of "Doctor of Medicine" without the preceding degree of Magister (master).

In Russia you can be a Doctor of Mathematics, Astronomy, Greek, Literature and Medicine, but never of Veterinary Science. In Russia we have some veterinarians who have the degree of Doctor of Medicine, but after graduating with the degree of "veterinarians" they have enrolled in the medical department of some university and received first the degree of Pdysician and then that of Doctor of Medicine.

In the Russian Veterinary Institute the four-and-one-half-year course is longer than in America. It is more extensive in the natural historical sciences (Chemistry, Zoology, Comparative anatomy, Mineralogy, etc., and has a complete course in physiology and (normal) histology. Thus we have a separate course in general pathology and a separate course in pathological anatomy taught by another Professor. We have a course in general hygiene and a separate course in zootechnics and bacteriology.

In Dorpat we have a separate course in horse-breeding. All the courses are more theoretical and on account of the large number of students in each college it is impossible to arrange for the practical work of the clinic and the laboratory.

Although the graduates of the veterinary colleges find enough employment the positions obtained are not very good, and the salaries are not sufficiently large. Many graduates continue their education in the universities and in other colleges; for example, in the medical department of the University and in the agricultural colleges. Some take special work in chemistry and receive also the degree of Doctor of Medicine, Agronomist, or Engineer Chemist. Only within recent years have the positions held by veterinarians become better owing to the success of bacteriology and the establishment of experimental stations and bacteriological laboratories. Veterinary bacteriologists can now take good positions and receive better salaries than formerly. The position of director of a veterinarian experiment station or of a bacteriologist in one is the best to be had by a veterinarian. Only after several years of practice can a veterinarian hold such a position, but students, just after graduation, are ready for several kinds of work as follows:

1. They can be employed in the Russian Imperial Army militaryas veterinarians in the cavalry, artillery, and Casakan Regiment. At present the position of the

*Abstract of paper read before the Veterinary Medical Association of the Colorado Agricultural College, April 24, 1911, Ft. Collins, Colo.

Military Veterinarian is much better than it was formerly Now every regiment has two veterinarians, while previously there was only one. The Military Veterinarian can take a higher position in the future, as corps veterinarian and as the Head Military Veterinarian of a separate province.

2. The municipalities, large cities in Russia, employ veterinarians as Meat Inspectors and as Sanitary Veterinarian.

3. The County Board in European Russia, "Semstvo," employ veterinarians almost exclusively for the control, examination and prevention of contagious diseases. Also many counties have Veterinary Hospitals for the cure of non-contagious diseases and the care of domestic animals and live stock.

4. The Russian Imperial Government employs veterinarians on the boundaries of Turkey, Persia, and China to prevent the distribution of rinderpest.

5. The Russian Imperial Government needs many veterinarians also for the hard struggles with rinderpest which prevails in Caucasus, Turkestan and East Siberia.

6. The Russian Imperial Government needs veterinarians throughout all Russia for the inspection of cattle going from province to province or to large cities such as St. Petersburg, Charkow, Kiev, etc.

7. In Russia veterinarians are employed also in "the military guards" on the boundaries of Germany and Austro-Hungary, and China.

8. The Russian Imperial Government employs some veterinarians in the Department of Agriculture for Animal Husbandry.

9. The Department of Horse-breeding employs about two hundred veterinarians, some of which hold the position of Director of Stallion Stock.

10. The agriculture and veterinary colleges need veterinarians as inspectors and professors.

11. Russian veterinarians are employed in many places in China for the inoculation of cattle against rinderpest and for the inspection of cattle in quarantine.

12. During last year the Government of Abyssinia, Africa, asked for Russian veterinarians in place of the French veterinarians as formerly. From the above you can see that there is plenty of work to be done by Russian veterinarians. In the first place they must struggle with rinderpest, for epizootie rinderpest still exists in Russia. While it has been exterminated in almost all civilised countries in the world, it is still found in Turkey, China, and Russia. The struggle with the rinderpest requires much money and many veterinarians. However, rinderpest is exterminated in all European Russia and remains only on the borders. The chief measures against rinderpest are inoculation, preventive and curative. For preventive inoculation immune-serum and defibrinated blood taken from sick cattle is given. For curative inoculation, only serum is given.

For the preparation of immune-serum we have two experimental stations. The largest and best "antiseptic station" is located ten miles out from the city of Chita, in East Siberia. Two years ago I was employed there as assistant chief director of this station. After an absence of two years and just before coming here to the United States I visited this station and was astonished at what was accomplished in so short a time by so energetic and skilful a man as the director of this station, A. A. Dwdoo Kalof.

The station now has many beautiful bnildings. It has a separate veterinary hospital, dairy farm, and three special laboratories for dairy farming; it experiments also in the raising of wild animals and the domestication of them; it has a large farm for animals for experimental purposes—rabbits, guinea pigs, arctomys; it has a special laboratory for the diagnostic investigation of glanders, and has about two hundred immune cattle, and sent an entire carload of serum to different parts of Russia and China for the prevention of the rinderpest. This station is located on the main Siberian Railroad and many people and laymen visit it and go away very well pleased.

There is another antipestic station located at Zurnabad (Caucasus). This station investigates piroplasmosis of cattle and spirochetosis of fowls.

Unfortunately one assistant in the station, V. V. Avrorot, died from glanders inoculated by a glasss test tube, containing a culture of glanders breaking and cutting his hand.

In European Russia many provinces have stations and laboratories for the preparation of anti-anthrax vaccine (Pasteur) for the diagnostic investigation and other lines of work; for example, Saratow, Samara, Simbusk, Novgorod, Voronege, Pensa Koosk, Poetava, Tovla, Oral, Ekateirnoslav, etc.

In the Cosakan province of Don there has been established a special experimental station for the investigation of glanders under the direction of Prof. Koney.

In Siberia we have a small laboratory for the investigation of the diseases of domestic animals in Tobolsk, Vladivostok. In the farthest northern point of Siberia, in the city of Jakootsk, there was recently established an experimental station for the investigation of the diseases of the domestic reindeer (*Rangifer tarandus*). The reindeer is a very valuable domestic animal in the far northern European Russia and Siberia. The life of the people of these countries is sometimes dependent upon the reindeer exclusively In such places the reindeer is priceless as a domestic animal because they alone with the dog can endure the hardships of the icy cold, wild country. They also furnish the inhabitants of northern Russia with food, clothing, light and heat, and without them the people could not travel. Therefore the eradication of the contagious diseases of the reindeer is very important. Of the many contagious and parasitic diseases of the reindeer we know only one, anthrax. For the prevention of anthrax the Russian Imperial Government has established the experimental station for the preparation of serum and Pasteur vaccines against anthrax in the province of Afhangelsk. But the larger number of the diseases of the reindeer are not fully understood, and at present the Russian veterinarians are investigating them at the experimental stations of Ashangelsk, in northern European Russia, and of Jakootsk, in Siberia.

In the capital of Russia, St. Petersburg, we have the large main laboratory. This laboratory is situated in a new building, well equipped and costing about 200,000 roubles ($100,000). It is divided into four departments, bacteriological, serotherapy, biological chemistry, and physiology. Eight veterinarians are permanently employed there. Every year new equipment is added to the St. Petersburg Laboratory for special advanced postgraduate courses in bacteriology and the study of the diagnostic methods.

In recent years the Russian veterinarians have published many important and interesting articles concerning investigations in bacteriology, parasitology, and serotherapy.—*American Veterinary Review.*

Medical Aphorisms.

An aphorism is described as a maxim, or a general rule. I prefer the latter definition, since in medicine very few axioms obtain. Medicine was never an exact science, and never will be, so long as the varying eddies of life and its environment are manifest. So all that a medical observer can say is that, in his experience, certain signs, symptoms and data are in the main correct; and the more observant he is, and the greater the opportunities of observation which he has enjoyed, the more likely is he to be correct in the deductions which he submits.

PTOMAINE POISONING.

By H. J. HUTCHENS, D.S.O., D.P.H. OXON., M.A.

(*Continued from p. 170.*)

EPIDEMICS.

If epidemics of food-poisoning be classified according to the nature of the organism concerned, they may be divided conveniently into three groups :

1. Epidemics caused by organisms belonging to the enteritidis group ;
2. Epidemics due to *Bacillus botulinus ;*
3. Epidemics associated with other organisms.

In the Frankenhausen epidemic Gärtner isolated from the spleen of the fatal case and also from the meat which had caused the epidemic, an organism which had not hitherto been described, and to which he gave the name *B. enteritidis.* This observation entirely altered the views then held with regard to food-poisoning, in that it showed that in some cases, at least, the disease was a true infection. In many of its characters the *B. enteritidis* (Gärtner) resembles the typhoid and colon bacilli, but shows certain differences from those organisms, and notably in its effects upon the human body. Some ten years later (1898) Durham and then de Nobelé showed that from epidemics of food-poisoning two closely related organisms had been isolated. They found that while serum obtained from any of the affected persons in a given epidemic agglutinated the organism which was the cause of the epidemic, it did not always agglutinate the bacillus from another clinically identical epidemic. This showed, therefore, that epidemics of food-poisoning might be due to either of two organisms, and that these organisms could only be distinguished from one another by resort to agglutination tests. These organisms are known respectively as *B. enteritidis* (Gärtner), which was the organism originally found, and *B. enteritidis* (Aertrycke), representing the other type, so called by an epidemic at Aertrycke in Belgium, investigated by de Nobelé.

According to Sacquépée, 80 per cent. of epidemics of food-poisoning are due to these bacilli.

The enteritidis bacilli, like the other members of the typhoid-colon group to which they belong, are short cocco-bacilli, occasionally growning out into long filamentous forms, gram-negative, staining more deeply at the poles than in the centre, flagellated, motile, not liquefying gelatin and not forming spores. The group includes the various dysentery bacilli, the typhoid bacillus, the bacillus para-typhoid *a* (which causes a disease clinically indistinguishable from enteric fever) the bacilli of the enteritidis group and the numerous colon bacilli.

The various groups of intestinal bacilli can be readily differentiated by an elementary study of their biochemical reactions. The dysentery and typhoid bacilli give no gas in glucose or lactose, leave the colour of litmus milk unchanged, and form no clot. *B. paratyphoid a* gives gas in glucose, no gas in lactose, turns litmus milk permanently acid, but does not clot it. The enteritidis group gives gas in glucose, no gas in lactose, and turns milk distinctly alkaline. The colon group gives gas in glucose and in lactose, clots milk and turns it markedly acid.

Poisoning by bacilli of the enteritidis group generally takes the form of a septicæmia. The bacilli can be recovered from the blood during life and from the spleen after death. But organisms of this group give rise to a highly thermostable toxin, which will resist boiling for some little time. This is a matter of considerable practical importance, because it can be readily understood that these organisms might be present in milk, for instance, in which they would multiply and produce their toxins. If the milk were heated before being used as food the bacilli might be destroyed, while the toxins remained, and these latter might then give rise to acute symptoms of gastro-enteritis in those who consumed it. This supposition is rendered all the more feasible by a consideration of animal experiments. Small laboratory animals fed on sterilised cultures of *B. Gärtner* or *B. Aertrycke* suffer from gastro-enteritis in the same way as though they had been fed with living cultures.

Infection with bacilli of the enteritidis group leads to the formation of agglutinins in the blood, and these are specific for the organism which was the cause of the infection. This fact is of practical importance, because in testing the blood of a person who is supposed to have suffered from food-poisoning due to organisms of this group it is obvious that blood will have to be tested as regards its agglutinating capacity, both for *B. Gärtner* and *B. Aertrycke.* It is also important to remember that co-agglutinins also appear, and unless care be taken to bear this fact in mind a Gärtner infection might be mistaken for an enteric infection when the agglutination reaction alone is relied upon, because of the considerable amount of co-agglutinin for the typhoid bacillus which is often found in a Gärtner serum.

Epidemics due to *B. Gärtner* have been recorded by Gärtner at Frankenhausen, by van Ermengen at Morseele, Brussels, and Gand, by McWeeney at Limerick, etc. In the neighbourhood of Newcastle recently, symptoms of enteritis affecting more than 100 persons were traced to the consumption of milk from a particular farm. The farm was visited, and it was found that a cow, which had recently calved, was suffering from enteritis. The cow died, and post-mortem examination "revealed tuberculous pleurisy, while the kidneys and liver were completely disorganised and the fore stomach inflamed." None of the cases proved fatal. *B. Gärtner* was isolated from the stools of some of the patients, and was present in practically pure culture in the milk. Unfortunately, none of the tissues or organs of the cow could be obtained for bacteriological examination.

The *Bacillus enteritidis* (Aertrycke) has been isolated from epidemics at Aertrycke by de Nobelé, at Breslauby Kœnsche (this organism was originally described as *B. Breslaviensis*), at Düsseldorf by Trautmann, at Neunkirchen by Drigalski, etc., and it was proved to be the cause of an epidemic at Chadderton by Durham. In Newcastle in December last, twenty-one persons ate some tinned mutton ; nineteen became ill with symptoms more or less severe of gastro-enteritis, and one case proved fatal. *B. Aertrycke* was isolated from the spleen and intestinal contents of the fatal case and from the mutton.

From the point of view of prophylaxis, great interest naturally attaches to the source of these oranisms. So far as evidence is available it would seem that the lower animals, cattle, pigs, and horses, suffer from an acute specific infective septicæmia, accompanied by enteritis, and due to bacilli of the enteritidis group, and in the great majority of cases some history of disease in the animal whose flesh was the cause of an epidemic of food-poisoning can be obtained on careful inquiry. Van Ermengen has collected details of 112 epidemics of meat poisoning. In 103 of these epidemics the meat came from a diseased animal. In the milk epidemic already referred to, one of the cows at the farm from which the milk came was suffering from some acute disease accompanied by diarrhœa. As a rule, however, the meat has a perfectly healthy appearance, and is quite above suspicion. In van Ermengen's series, quoted above, out of the 103 epidemics in which the meat was traced to a diseased animal in only five did it show evidence of putrefactive change. Experiments have been carried out to ascertain if organisms of the enteritidis group are normally present in the healthy human and animal intestine, and some German observers have stated that these bacilli are to be found fairly frequently under such con-

ditions, Savage in a long series of careful investigations has failed altogether to confirm these results, and expresses the view that food-poisoning in man is an infection derived from animals actually suffering from disease caused by bacilli of the enteritidis group.

Organisms having the morphological and cultural characters of the enteritidis group have been obtained from numerous sources, and have received different names. In addition to the *B. enteritidis* (Gärtner) and *B. enteritidis* (Aertrycke) which have already been mentioned, the following organisms, among others, all belong to this group:—

1. An organism which had been found in association with a disease clinically resembling enteric fever in man, and known as the *bacillus paratyphoid (beta)*.
2. An organism isolated from pigs suffering from hog-cholera, and known as the bacillus of hog-cholera. *B. suipestifer*, etc.
3. The *Bacillus typhimurium* (Löffler).
4. The bacillus of Danysz, found in a disease of rats.
5. *Bacillus psittacosis*, isolated by Nocard from parrots suffering from a septicæmic condition, accompanied by enteritis and congestion of the internal organs.

B. Gärtner and *B. Aertrycke* cannot be distinguished on morphological or bio-chemical grounds, they can, however, be readily differentiated by agglutination reactions. Both these organisms were originally isolated from typical epidemics of food-poisoning, and have since been found in numerous similar epidemics, and neither has ever been found except in association with epidemics of food-poisoning. Clinically the symptoms produced by them are the same, and whether an epidemic is due to *B. Gärtner* or *B. Aertrycke* can only be determined by a study of the agglutination reactions of the organism isolated. From some cases, however, of disease in man clinically indistinguishable from enteritic fever, an organism, *B. paratyphoid* (*beta*), has been isolated, which, so far as its morphological and bio-chemical reactions are concerned, is identical with *B. Aertrycke* and *B. Gärtner*.

Another important result of Bainbridge's work has been to show that the various rat viruses (*B. Danysz*, *B. typhi murium*, etc.), are bacteriologically, pure or mixed cultures of *B. Gärtner*, *B. Aertrycke*, or *B. paratyphoid (beta)*. The organisms present in the different rat and mouse viruses, as well as certain other organisms, *e.g.* Nocard's psittacosis bacillus, had previously been regarded as closely related to Gärtner's bacillus, but their identity had not been proved. Objection has been raised to regarding the various rat and mouse viruses as identical with the food-poisoning bacilli on the ground that were they identical epidemics would have occurred among those who handled such viruses. This objection is easily met, because the handling of these viruses can be shown to have resulted in some instances in an outbreak of food-poisoning among those who handled them. In this connection the following observation of Shibayama in Japan (quoted by Sacquépée) is of interest: "In a village in the province of Tajamata a quantity of *B. typhi murium*, which was intended for use as a rat poison, was by mistake given to a horse which at the time was in perfectly sound health. The horse became ill the same day and died within a week. The carcase was buried but was subsequently dug up by a number of workmen, who ate the flesh. Within three days thirty-four of those who had eaten some of the horseflesh fell ill, and one of them died. The organism was recovered from the meat."

The so-called bacillus of hog cholera is identical with *B. Aertrycke*. This organism appears to be a secondary infection in pigs suffering from hog cholera, the true cause of the disease being one of the invisible, filtrable viruses. The identity of *B. Aertrycke* and *B. suipestifer* does not appear to be disputed, and yet very large numbers of carcases of pigs which have died of hog cholera, many of them presumably being infected with *B. Aertrycke*, are annually consumed as food, and though food-poisoning is often associated with the consumption of the meat of pigs, yet the number of such epidemics is very small as compared with what might have been expected.

"Botulism."

Food-poisoning due to *B. botulinus* (Botulism) is a much rarer form of food-poisoning than that just considered. The symptoms are quite different from those produced by the enteritidis bacilli and chiefly affect the nervous system. The incubation period is short (12 to 24 hours) and is generally followed by some feeling of nausea, abdominal pain and constipation, but the characteristic symptoms develop later, resembling closely the symptoms due to poisoning by the vegetable alkaloids, dysphagia, dryness of the mouth, marked dilation of the pupil, paralysis of accommodation, ptosis, etc.

The disease generally lasts some weeks, but may be merely of a few hours' duration. The death-rate is high and varies from 15 to 40 per cent. of those attacked.

The symptoms of botulism are due to poisoning with the toxins of a spore-bearing bacillus, *Bacillus botulinus*, which was discovered by van Ermengen in 1895 in an epidemic of food-poisoning following a banquet at Ellezelles. The organism was isolated from the ham which gave rise to the illness, and also from the spleen and intestinal contents of one of the fatal cases. The *Bacillus botulinus* is a strict anærobe and gives rise to an extra-cellular toxin chemically analogous to the toxins of diphtheria and tetanus. Botulism is always associated with the consumption of meat which has been preserved, and preserved under anærobic conditions.

Other Infections.

Symptoms of food-poisoning sometimes follow the consumption of meat infected with organisms other than those already referred to. The nature of the infection in these cases is not definitely ascertained but would seem to be toxæmia, but whether the substance producing the symptoms is a true bacterial toxin or not is difficult to determine. Of five epidemics of food-poisoning occurring in Newcastle and the neighbourhood during the second six months of last year, three belong to this category. All of them followed the use of tinned meat. In two cases corned beef was the cause, and in one case tinned salmon.

On September 15, 1910, six persons partook of corned beef from a newly-opened 7lb. tin. A few hours (2 to 6½) later they all fell ill and the symptoms were those of a severe gastro-enteritis with collapse. The meat was bacteriologically examined and the only organism recovered was the *Staphylococcus aureus*. The meat was wet, in parts of a greenish appearance, and had a disagreeable odour. All the patients recovered. Other tins of the same brand exposed for sale in the same shop gave rise to no untoward symptoms when eaten by other customers. Ostertag refers to an epidemic of food poisoning investigated by Kuborn at Denis which was considered to be due to the *Straphylococcus aureus*.

In the other epidemic of food-poisoning following the consumption of corned beef, at least nineteen people partook of the beef and all of them suffered from a more or less severe illness. The symptoms were preceded by a short incubation period (1½ to 7 hours) and were of the nature of an acute gastro-enteritis. A proteus was isolated from the meat and was probably the cause of the illness. No deaths occurred. A portion of the meat was examined for ptomaines in London on behalf of the agents, but I am informed that no substance of that nature were present.

The third epidemic concerned five persons, a man, his wife, and his three young children, all of whom ate some

tinned salmon. One-half to three-quarters of an hour after partaking of the salmon all of them were seized with diarrhœa and vomiting and suffered from severe collapse. The woman, who was pregnant, aborted. All the patients recovered. The salmon is said to have had an "irony" taste which was so unpleasant that very little of it was eaten. The tin was sent to my laboratory, but except for a few flakes of salmon adhering to the edges it was empty. A number of these flakes were examined, and from each of them an organism absolutely indistinguishable from the *pneumococcus* was isolated in pure culture. Three other tins were bought at the same shop and the contents of all proved to be sterile.

A few epidemics of food-poisoning have been recorded in which organisms other than those mentioned above have been believed to be the cause. But enough has been said to show that while in the great majority of cases of food-poisoning the disease is due to a specific infection with organisms of the enteritis group, symptoms of gastro-enteritis, may nevertheless follow the consumption of food infected with one or other of several organisms belonging to other groups.—*The Hospital.*

Medicine as a Profession.

The choice of a profession is frequently made by a boy's father, and if he is a medical man with a good practice it has hitherto seemed only natural that he should desire his son to follow in his footsteps. It is not unreasonable, also, to assume that there is often a hereditary aptitude for medical practice, and a hereditary willingness to assume its responsibilities. For these reasons until lately a medical man in good practice almost as a matter of course brought up one of his sons to succeed him in his practice, and these hereditary followers of medicine were some of the best recruits which the profession received. We very much doubt whether this proportion of sons of medical men is now being maintained. For 20 years, during which the average number of medical students has gone down, the medical profession, especially in regard to general practice, has had to undergo many drawbacks and even hardships, and it is probable that the number of fathers, who have considered during this 20 years that in placing their children in the medical profession they were giving them the best opportunity which lay in their power of leading a useful life and securing a competence, has considerably decreased. General practitioners have seen in the many-sided development of the profession of medicine changes which necessarily have greatly affected their pecuniary returns, while they have shared in the rapidly growing expenses of daily life without in many instances being able to demand correspondingly increased fees from their clients. The decision, the very right decision, of the General Medical Council not to permit the use of unqualified assistants threw a heavy burden upon many practitioners, especially upon those who were most oppressed by the unwholesome growth of contract practice. There can be no doubt that a large number of the old-fashioned unqualified assistants were unduly employed; they were placed in positions of responsibility for which they had not received adequate training, and they gave to the public services which were not the services for which the public believed itself to be paying. While, however, the employment of unqualified assistants was abused in this manner, and, alas, in many places, the fact remains that a certain proportion of these assistants were quite properly used, while their remuneration was necessarily at a lower figure than that of assistants who, being duly qualified, had spent a large sum of money upon their medical education, the unfair growth of contract practice was directly responsible for the abuse of unqualified assistants. The public in larger numbers, and (unfortunately) in increasingly substantial positions, began to avail itself of the contract terms which had been originally framed by the medical profession with extreme moderation, being in fact a direct outcome of the organised charity which the profession has always extended towards the public. Consequently many general practitioners found themselves confronted with the situation that part of their income was being paid to them in return for an enormous amount of work under contract that could never be remunerative—more, that could only just be made to pay when the duties were performed in a perfunctory manner and at the least possible cost. Then arose the extremely dangerous position, for medicine and for the public alike, under which thousands of persons were seen in crowded surgeries in a mechanical way, and in an incredibly short space of time, for capitation fees rarely attaining to 5s. a year and often dropping to ½d. a week. Many medical men manfully struggled in these appalling conditions to do scientific work, but some, disheartened by the conditions, discharged their responsibilities in a manner corresponding to their remuneration—they provided the kind of thing for which they were being paid. In practice of this sort the unqualified assistant was often as good a man as his principal, and when the services of persons whose names were not on the Register became illegal the troubles of the general practitioner, severe already, became accentuated, for he was not able to obtain from the various medical aid associations into whose grip he had fallen any increase of salary to compensate him for an increased outlay in the matter of professional assistance. Representations made to the medical aid associations, pointing out the abuses under which their medical officers suffered, were responded to in many cases by the introduction into the practitioners' districts of salaried medical officers to do the work of the medical aid associations, and at once the practitioners saw that, not only were their professional profits seriously diminished by the fact that persons well able to pay reasonable fees took advantage of terms of contract practice which had never been intended for them, but a grave uncertainty of tenure was introduced into professional life. A medical man could no longer bring up his son to succeed to his practice with any security, for he could no longer rely upon having a practice to which his son might succeed. In the meantime the fees for vaccination and the receipts from midwifery were decreasing for obvious reasons, while the ordinary therapeutic routine of treatment was growing more costly to him who had to supply the drugs and the dressings. All these things, acting and interacting, so altered the pecuniary position of many medical men during the last 20 years that those who have felt their full force have refrained from sending their sons to meet the same experiences. Still the supply of medical men has been kept up. The great promises of the medical life have proved sufficiently attractive to ensure able collaborators. And here we must recall the fact, often though it has been mentioned, that more than any other unit of society the members of the medical profession have inside the fence of their calling a choice of vastly varying careers. The consultant and specialist, the general practitioner, the State official, the officer, the pure pathologist—all are within our fold and have a common professional aim and code, but they lead lives that vary in every detail. Hence the medical profession has so wide an appeal that, despite the dark days through which it has recently been passing, fresh candidates for its trials and triumphs have not been wanting. We congratulate our new adjuvants upon deciding to pursue a calling that promises to all a life of the highest utility, and to some the purest possible delights through knowledge acquired and difficulties surmounted.—*The Lancet.*

A "Presidential" in Colorado.

Dr. Geo. W. Dickey, in the course of his address at the meeting of the State Society at Fort Collins, Colorado, early in June. It is quoted here because it shows that men in the States are thinking along the same lines as some of us in Britain.

"I have no doubt that every man of any ambition has someone to whom he looks up and wishes he might become as great, as good, or as rich—that all depending upon our individual taste. Can't you remember when a boy, learning to read, you admired some one of the older boys who seemingly could do everything and did you not wish to be like him? Well, we are only learning to read in the larger sense now, for that matter, and may each one of us find some high ideal to look up to. Aspire to great things, and although you miss most of them you will still be better off for having tried. If the Governor of our great State was looking for a man to represent him at the Presidential inauguration, where would he go to look for one? Would he select one who loafed around a livery stable? Or would he choose one who has been a success in his life, either business or professional?

You owe something to the community in which you reside Join with the people who are boosters and help things along, not only with your money, but with some of your time. It will help you professionally to be identified with school affairs, civic societies, and some politics; for the day is coming and coming fast when we will be called upon to supervise the food supply of all the cities and towns in this nation, and we don't want the M.D.'s to have more than their just share in the work. I think we should have a member of our profession on every local board of health in the State, and when the time is ripe may we be prepared. Gentlemen, we of this State want to be in the front rank of advancement. We cannot afford to lose a chance to further our cause.

One thing I wish to compliment the members of this Society on, is the good feeling and good fellowship displayed among its members. We have no cliques nor skeletons in our closets like some other societies, and may we always be so blessed. If one of our brothers should become weak-kneed should we not furnish him with a starch bandage until such a time as he shall overcome his defect. Remember a cable is no stronger than its weakest link.

Stand together and boost. Boost for one another, boost for our profession, boost for the stock interests of the State. Show the men engaged in the stock business that their interests are our interests and will be safe in our hands. Show them that we stand at all times ready and willing to further their interests when we can do so legitimately.

Let us all beeome optimists. We live in the fairest State in the Union to practise in. A mile nearer heaven than those in the low altitudes. We have more sunshine and more wind, but fewer bad storms and bacteria. You ought to consider yourselves rich, heirs to the mightiest fortune in the world; manhood.

OBITUARY.

Harry D. Chorlton, M.R.C.V.S., Belmont, Upper Colwyn Bay. Graduated, Lond: May, 1889.

Mr. Chorlton died on Sept. 6th from melanotic sarcoma. Aged 45 years.

J. W. Little, M.R.C.V.S., Abbey Town, Silloth, Cumberland. Edin: May, 1892.

Death occurred on Sept. 8th, from chronic nephritis and cardiac failure. Aged 41 years.

Geo Smith, V.S., Freshwater, Isle of Wight, died on Sept. 7th, from heart failure, at the age of 82 years.

Personal.

Cole.—On Sept. 13th, at Ramsgate, the wife of Mr L. Baker Cole, M.R.C.V.S., of a daughter.

The Board of Agriculture and Fisheries have appointed Messrs. George Vincent Slinn, Hedley Charle Davys Golledge, Douglas Ainslie Hosford, Danie Alfred Edmund Cabot to be Assistant Veterinary Inspectors (non-established) for the purposes of the Diseases of Animals Acts, 1894 to 1910; and Lewis William Wynn Lloyd, M.R.C.V.S., to be a Local Veterinary Inspector.

Messrs. Newton, Chambers, and Co., Ltd., of Thorncliffe, Nr. Sheffield, have been awarded a Grand Prix at the Festival of the Empire for their Izal disinfectant preparations. They hold a series of highest possible awards at International exhibitions at home and abroad.

ARMY VETERINARY SERVICE.

Extract from *London Gazette*,
War Office, Whitehall, Sept. 1.

Regular Forces. Army Veterinary Corps.

The undermentioned Lieuts. to be Capts.—W. H. Taylor, W. N. Rowston, V. C. Leckie. Dated Sept. 1.

A Correction.

The two extracts which we reprinted last week on "Bracken poisoning" and "Warbles" were from the *Annual Reports and Proceedings under the Diseases of Animals Acts* and appeared in the Chief Veterinary Officer's Report. We regret that by inadvertence they were credited to The Board of Agriculture Journal: the pages were taken out of the covers to work from, and are then similar in appearance. —H. & W. B.

CORRESPONDENCE.

THE CAUSATION OF GENERALIZED PERITONITIS.

Sir,

A question that has been exercising me a good deal of late, and on which I would like the opinion of your correspondents, is as to the possibility of the occurrence of a generalised peritonitis without puncture or gangrene of the body wall or intestines, the bursting of an abscess, or invasion *via* the lymph channels of the diaphragm in a case of empyema. Infection carried by entozoa or from the bladder, uterus, inguinal canal, and umbilical cord would also be, of course, excluded. Is generalized peritonitis, for instance, possible as the result of "chill"?

That we occasionally get a generalized peritonitis without discoverable cause is undoubted, and I would advance as a pure hypothesis, which may or may not be original, that in cases of flatulent colic with great distension of a portion of the intestine lumen, the passage of bacteria from the intestine may be rendered possible without any discoverable solution of continuity.

Capt. Vidal, R.A.M.C., has told me of a case of generalized peritonitis in a patient under his treatment preceded by flatulent colic, in which no assignable cause was discovered post-mortem. The intestinal tube was removed in its entirety from œsophagus to anus and filled with water, but no leakage could be found. The question of course is mainly of academic interest, but is in my opinion worthy of consideration.—I am, yours faithfully,

Wakefield Rainey, Capt. A.V.C.

Tempe, Bloemfontein, Aug. 3.